Fuel Subsidy Removal and Micro, Small, and Medium Enterprises Performance in Lagos State, Nigeria: An Assessment of Business Protection Measures

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ABSTRACT

Fuel subsidy removal has become a major policy challenge with significant implications for micro, small, and medium enterprises (MSMEs), which are highly vulnerable to cost shocks. The 2023 removal of fuel subsidy in Nigeria created a surge in energy and transport costs, affecting MSME productivity and sustainability, especially in Lagos State, the commercial hub. This study therefore assessed the effect of fuel subsidy removal on MSME performance in Lagos State, Nigeria, focusing on business protection measures. The study examined the effect of energy costs, transportation and logistics costs, and government and institutional supports on MSME performance. The study used a descriptive survey research design. Data were collected using a structured questionnaire from 969 MSME owners drawn from a study population of 3,337,552 using Taro Yamane's formula. Reliability of the instrument was established through pilot testing and Cronbach's alpha. Data were analysed using multiple regression. Findings revealed that energy costs ($\beta = 0.890$), transport and logistics costs ($\beta = 0.839$), and government and institutional supports ($\beta = 0.770$) significantly affected MSME productivity. The study concluded that subsidy removal negatively affects MSME performance, but government support can reduce the effect. It recommended targeted support in energy alternatives, subsidised logistics, tax reforms, and awareness campaigns. Policy implications include strengthening institutional frameworks to help MSMEs build resilience during economic reforms.

Keywords: Energy costs, institutional supports, productivity, subsidy removal, transport costs

INTRODUCTION

Fuel subsidy removal has become a major global issue because it affects many areas of the economy. According to Ilodigwe (2023), governments often end subsidies to stabilize budgets and improve markets, but this action usually hurts micro, small, and medium enterprises (MSMEs). These small businesses have limited capital and quickly feel the pressure of rising costs (Aliyu et al., 2025). Nsude et al. (2025) noted that increased fuel and transport expenses after subsidy cuts can slow production, raise prices, and threaten business survival. Hassan et al. (2024) emphasized the importance of support systems such as tax relief, easier credit access, and renewable energy options to help MSMEs adjust. Owota and Mansi (2024) pointed out that MSMEs are vital for job creation and economic growth, so policies should protect them during major financial changes. As more nations phase out fuel subsidies, Usman and Mohammed (2024) highlighted the need for governments to strike a balance between saving public funds and supporting businesses to achieve fair and sustainable growth.

In developed nations, researchers have shown growing interest in fuel subsidy removal because of its social and economic impact, especially on MSMEs. Nsude et al. (2025) stated that while these reforms improve energy efficiency and cut public spending, they also raise operating costs for small firms that rely on fuel for transport

and production. Ilodigwe (2023) added that sudden subsidy removal can disrupt supply chains, reduce profits, and weaken competitiveness. To limit these risks, Aliyu et al. (2025) noted that many governments adopt gradual reforms and add support measures such as tax relief, energy aid, and innovation grants to help small businesses. Hassan et al. (2024) cautioned that without these supports, such reforms may increase inequality and hurt entrepreneurship. As a result, global reform efforts now aim for fair and sustainable management strategies.

Across Africa, the removal of fuel subsidies has also become a major topic because of its strong impact on MSMEs, which drive economic growth. Williams, Akon-Yamga, and Onumah (2025) observed that these reforms often push up transport and production costs, reducing profits for small firms. Avordeh et al. (2024) found that MSMEs with little capital struggle to handle higher costs without state assistance. In Ghana, Greve and Lay (2023) linked fuel price hikes to lower productivity and job losses among MSMEs. In Kenya, Quak, Saha, and Thorpe (2022) reported that reforms without proper support widen inequality and weaken small businesses. Therefore, scholars recommend safety measures such as tax cuts, subsidized loans, and energy diversification to reduce negative effects on MSMEs.

The fuel subsidy removal in 2023 marked a major policy shift that quickly pushed up inflation, living costs, and business expenses in Nigeria. According to Olawale, Aderogba, and Seyi (2024), MSMEs, the backbone of Nigeria's economy, were the hardest hit by the sharp rise in fuel and transport costs. Inalegwu, Uloko, and Awulu (2024) found that many small firms faced lower profits, weaker customer demand, and rising operational pressure. In Lagos State, the nation's business center, Olumide (2025) noted that the effects were even stronger due to its dense population, high energy demand, and large number of MSMEs. Many of these businesses now struggle to stay afloat without essential support such as access to credit, alternative energy, or tax relief. This study highlights the need to review current business protection policies such as grants, credit access, and tax relief.

Globally, removing fuel subsidies has sparked debates due to its effects on business survival, especially among MSMEs. Okoruwa et al. (2024) found that in developed countries, subsidy reforms increase energy costs, shrink profit margins, and weaken small firms' competitiveness. In Africa, Nsude, Loraamm, and Letsa (2025) observed that MSMEs face higher transport and production costs after subsidy cuts. In Nigeria, Usman and Mohammed (2024) reported that the 2023 subsidy removal led to inflation, business closures, and job losses. However, most previous studies examined each of these effects separately. Few have explored how these factors interact to shape MSME performance. In Lagos State, the country's economic center, there is limited research on how subsidy removal and protection measure together influence MSME performance. This study addresses that gap by examining their combined effect on MSME performance in Lagos, Nigeria.

The main objective of the study is to assess the effect of fuel subsidy removal on the performance of MSMEs in Lagos State, Nigeria. The specific objectives are to:

i)   examine the effect of energy cost increase on MSME performance in Lagos State, Nigeria;

ii)   evaluate the effect of transportation and logistics costs on MSME performance in Lagos State, Nigeria;

iii)   assess the effect of government and institutional support measures on MSME performance in Lagos State, Nigeria.

LITERATURE REVIEW

Subsidy Removal

Subsidy removal is an important topic in economic reform, especially in developing nations facing budget limits and energy misuse. Governments often provide subsidies to make basic goods like fuel affordable. However, critics believe these subsidies disrupt market forces and deplete public resources (Rentschler & Bazilian, 2017). Kojima (2021) explained that removing subsidies means reducing or stopping government financial support for specific goods or services. The main aim is to improve efficiency, reduce government spending, and allow real

market prices to operate. According to Rentschler and Bazilian (2017), this approach can strengthen the economy in the long run, but it may also bring short-term challenges such as rising prices and financial strain on businesses. These challenges hit SMEs hardest, as they struggle with increased costs, lower profits, and reduced competitiveness. Therefore, it is vital to assess how MSMEs cope with these conditions and whether support measures can ease the effects. This study, therefore, looked at three key areas of subsidy removal, such as energy costs, transportation and logistics costs, and government and institutional support. The following paragraphs discuss the conceptual review of these three aspects in detail.

Energy Costs

Energy expenses make up a large share of business operating costs, especially in developing nations where power supply is unstable and infrastructure is weak (Blimpo & Cosgrove-Davies, 2019; Greve & Lay, 2023). According to Nsude, Loraamm, and Letsa (2025), these expenses affect MSMEs the most because they run on tight budgets and are easily hurt by changes in energy prices. They describe energy costs as all spending on fuel, electricity, and other power sources. Owota and Mansi (2024) reported that high energy costs reduce productivity, increase production expenses, and lower profits, especially for MSMEs. In Nigeria, the removal of fuel subsidies has sharply raised energy costs, pushing many MSMEs to scale down or modify their operations (Usman & Mohammed, 2024).

Transportation and Logistics Costs

Owota and Mansi (2024) noted that transport and logistics costs strongly influence how well businesses operate and compete, especially MSMEs. These costs are even more critical in developing countries, where weak infrastructure and policy changes, such as the removal of fuel subsidies, affect the movement of goods. According to Greve and Lay (2023), transport costs include fuel, vehicle maintenance, and labor for moving products, while logistics costs involve expenses for storage, inventory, and supply chain management. Aliyu, Danjuma, and Bature (2025) found that rising transport and logistics expenses reduce profits, delay deliveries, and limit MSMEs' market reach. In Nigeria, the 2023 fuel subsidy removal led to higher fuel prices, increasing these costs further. As a result, many MSMEs have had to raise their prices or reduce their business activities.

Government and Institutional Supports

Raimi and Raimi (2023) explained that government and institutional support play a vital role in keeping MSMEs stable and productive, especially during economic shifts or policy changes. After the removal of fuel subsidy, this support became even more crucial to help businesses manage higher costs and remain operational. According to Gencsü et al. (2022), such support includes measures like financial aid, tax incentives, clear policies, and training programmes from government agencies and development partners to promote MSME growth. Nnamani, Nwajiaku-Dahou, and Simpson (2024) showed that strong support systems enable MSMEs to survive tough economic periods by improving access to finance, reducing production costs, and raising efficiency. Raimi and Raimi (2023) found that Nigeria's 2023 fuel subsidy removal caused steep rises in fuel and transport expenses, prompting demands for government interventions such as low-interest loans and tax relief to support affected businesses.

Micro, Small, and Medium Enterprises

Micro, Small, and Medium Enterprises (MSMEs) play a major role in driving economic growth, innovation, and job creation worldwide. However, there is no single global definition for them. In developed countries such as the United States, micro enterprises employ fewer than 10 people, small ones have fewer than 50, and medium firms have up to 250 workers (OECD, 2021). The European Union uses similar staff limits but also considers yearly turnover or balance sheet size (European Commission, 2020). In Africa, definitions vary. Kenya defines micro businesses as those with fewer than 10 workers, small as 10–49, and medium as 50–99 employees (KNBS, 2021). Ghana uses both the number of workers and the value of assets (Boame & Tutu, 2021). In Nigeria, the Central Bank of Nigeria (CBN) and SMEDAN define micro enterprises as having fewer than 10 employees and assets below ₦5 million; small enterprises as 10–49 workers with assets between ₦5 million and ₦50 million; and medium enterprises as 50–199 employees with assets up to ₦500 million (SMEDAN, 2022). This study

applies SMEDAN's classification to examine how subsidy removal affects the productivity and survival of MSMEs in Lagos.

Performance of MSMEs

Evaluating MSME performance is vital for development since these businesses boost job creation, innovation, and GDP. In accounting, Badamasi and Gbolagade (2024) described performance through financial outcomes such as profit, return on investment, and cash flow. From a management angle, Abidogun (2023) emphasized measures like market expansion, innovation, and customer loyalty. Udo (2022) added that financial analysts assess liquidity, solvency, and asset use to gauge business strength. Similarly, Okpebenyo, Ogini, and Ileleji (2024) pointed out that non-financial results include customer satisfaction, employee engagement, and service quality. The Central Bank of Nigeria and SMEDAN track MSME success through GDP contribution, employment, productivity, and sector growth (SMEDAN, 2022). This study focuses on productivity, meaning output relative to input, as its main performance indicator. Mshelia (2017) defined productivity as the efficiency with which labour, capital, and materials are converted into goods or services.

Theoretical Review

Cost-Push Inflation Theory

The Cost-Push Inflation Theory was first introduced by Porter (1959) and later expanded by Rentschler and Bazilian (2017). They explained that inflation can arise when production costs increase, not just from higher demand. According to Dadush (2023), the theory suggests that when input costs such as wages, fuel, or raw materials go up, firms raise prices to protect their profit margins, leading to inflation. Supporters like Aitalohi (2021) argue that this view effectively explains inflation during supply shocks or major policy changes. However, Hassan, Koko, and Abdulrahman (2024) pointed out that critics see the theory as too narrow because it ignores monetary factors and inflation expectations. Even so, the idea still applies to developing economies where policy changes cause cost increases. For instance, after fuel subsidy removal, higher fuel and transport costs have raised overall prices and hurt MSME operations. The Cost-Push Inflation Theory helps explain these effects and highlights why MSMEs need protection during such policy reforms (Kayode & Idera, 2025).

Empirical Review

Okoruwa et al. (2024) studied how fuel subsidy reforms affected the performance of MSMEs in Enugu State, Nigeria. They used a cross-sectional survey design and gathered data from 300 MSME owners using semi-structured questionnaires. Through stratified sampling, 150 participants were selected. The study used SPSS for descriptive and inferential statistics. Results revealed a decline in sales and customer retention post-subsidy removal, stressing the need for support programmes to cushion MSMEs.

Taiwo and Adejoke (2024) studied how removing fuel subsidies affects the survival and growth of MSMEs in Ogun State, Nigeria. They adopted a descriptive survey design and collected data using structured questionnaires administered to 350 registered MSME operators. A total of 180 respondents were selected using purposive sampling. The researchers analysed the data using multiple regression analysis. Findings showed that the subsidy removal significantly increased production and transportation costs, which negatively affected the profitability and survival of MSMEs.

Ajide and Alimi (2023) studied the effect of energy cost on the performance of MSMEs in Ibadan, Nigeria. The researchers adopted a descriptive survey design and collected primary data using structured questionnaires. The study targeted registered MSMEs in the manufacturing and retail sectors across five local government areas. From a population of 500 enterprises, a sample of 250 respondents was selected using stratified random sampling. Data were analyzed using multiple regression analysis. Findings revealed that rising energy costs significantly reduced MSMEs' profit margins, increased operational costs, and led to a reduction in production output.

Adeoye and Olanrewaju (2022) studied the impact of transportation costs on the performance of MSMEs in Ibadan, Nigeria. They adopted a descriptive survey design and collected data through structured questionnaires administered to 300 registered MSME operators. From the population, 180 respondents were selected using purposive sampling. The researchers employed multiple regression analysis to assess the relationship between rising transportation costs and business outcomes. Findings revealed that increased fuel prices and poor transport infrastructure significantly reduced MSME productivity, profit margins, and customer outreach.

Adebayo and Okonkwo (2022) studied the effect of government intervention programmes on MSME performance in Lagos State, Nigeria. They used a descriptive survey design and collected data using structured questionnaires from 500 registered MSME owners across five local government areas. From this population, 250 respondents were selected using purposive sampling. Data were analysed using multiple regression analysis. Findings revealed that tax incentives, low-interest loans, and capacity-building programmes significantly improved MSME profitability and productivity.

Mutiso and Wanjiku (2021) examined the effect of logistics costs on the performance of small businesses in Nairobi, Kenya. The study used a cross-sectional survey design, gathering data through semi-structured questionnaires from a target population of 250 logistics-dependent MSMEs. A sample of 150 was drawn using stratified sampling. Data were analysed using correlation and regression techniques. Results indicated that warehousing and delivery costs negatively influenced operational efficiency and market competitiveness of the enterprises.

Njoroge and Mwangi (2021) investigated the impact of institutional supports on SME growth in Nairobi County, Kenya. Using a cross-sectional survey design, they collected data from 300 SMEs using interviewer-administered questionnaires. A stratified random sampling technique was applied to select 180 businesses. Data were analysed through SPSS using correlation and regression methods. Results indicated that financial access, legal support, and training from government institutions had a strong positive effect on business growth and resilience.

METHODOLOGY

This study adopted a quantitative research approach using a descriptive survey research design to examine the effect of fuel subsidy removal on the performance of MSMEs in Lagos State, Nigeria, with emphasis on assessing available business protection measures. Lagos State, the commercial hub of Nigeria, was chosen as the study area due to its high concentration of MSMEs across diverse sectors and its strategic role in national economic activity. The study covered all 20 Local Government Areas (LGAs) of the state. The target population comprised 3,329,156 micro, 8,042 small, and 354 medium enterprise owners, totaling 3,337,552 MSME operators who operate within sectors like agribusiness, retail, and services and have created paid employment for others (NBS, 2017). The sample size was determined using Taro Yamane's formula, yielding 400 micro, 381 small, and 188 medium enterprise owners, totaling 969 respondents. Data were collected through a structured questionnaire. To validate the instrument, expert reviews were conducted, followed by a test-retest pilot study with 97 MSME owners outside the sampled LGAs within a two-week interval. Feedback from this process led to improvements in clarity and relevance of the instrument. Reliability analysis was carried out using Cronbach's Alpha, with acceptable values obtained in energy costs ($\alpha = 0.782$), transportation and logistics costs ($\alpha = 0.765$), government and institutional supports ($\alpha = 0.780$), and productivity ($\alpha = 0.741$). Data collected were analysed using multiple regression analysis to examine the effect of the independent variables on MSME performance. Statistical computations were conducted using the Statistical Package for Social Sciences (SPSS), version 25.

Model Specification

In mathematical terms, the model is represented as follows:

Model: $P = F (X_{1i}; X_{2i}; X_{3i})$

Where: P= Performance (productivity), X_{1i}= energy costs, X_{2i}= transportation and logistics costs, X_{3i}= government and institutional supports, β_0= Intercept, β_1 - β_3= Regression Coefficient, µ= Stochastic error term.

RESULTS AND DISCUSSION

Testing of Hypothesis

All 969 questionnaires given to MSME owners in Lagos State, Nigeria were fully filled and returned, resulting in a 100% response rate. This high response was possible because trained research assistants guided the respondents to provide clear and complete answers.

Table 1: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.796[a]	0.634	0.633	1.5408	1.928

a. Predictors: (Constant), energy costs, transportation and logistics costs, government and institutional support

b. Dependent Variable: productivity

Source: Field survey, 2025

From Table 1, the regression model summary reveals a strong positive correlation (R = 0.796) between energy costs, transportation and logistics costs, government and institutional supports, and the productivity of micro, small, and medium enterprises (MSMEs). The R² value of 0.634 indicates that approximately 63.4% of the variation in MSME productivity is explained by the combined effect of the independent variables. The Adjusted R² of 0.633 confirms the model's goodness of fit, accounting for the number of predictors used. The Durbin-Watson statistic of 1.928 suggests minimal autocorrelation in the residuals, indicating the model's statistical validity and reliability.

Source: Field survey, 2025

Table 2: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	179.647	3	51.284	416.281	.000[b]
	Residual	.614	965	.104		
	Total	180.261	968			

a. Dependent Variable: productivity

b. Predictors: (Constant), energy costs, transportation and logistics costs, government and institutional support

From Table 2, the ANOVA results indicate that the regression model is statistically significant (F = 416.281, p < 0.001), confirming that energy costs, transportation and logistics costs, and government and institutional support collectively have a significant effect on the productivity of micro, small, and medium enterprises (MSMEs). The regression sum of squares (179.647) accounts for nearly all the variation in MSME productivity, while the residual sum of squares (0.614) represents minimal unexplained variance. With a degree of freedom of 3 for regression and 965 for residuals, the high F-value affirms the model's strong explanatory power in predicting MSME performance post-subsidy removal.

Table 3: Results of the multiple regression analysis showing the effect of fuel subsidy removal on the performance of MSMEs in Lagos State, Nigeria.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.034	2.019		31.753	.000
	Energy costs	1.890	0.873	0.890	1.747	.000
	Transportation and logistics costs	1.841	0.867	0.839	1.667	.000
	Government and institutional supports	1.792	0.789	0.770	.926	.000
a.	Dependent Variable: productivity					

From Table 3, the coefficient analysis reveals that all three predictors, energy costs (B = 1.890, p < 0.001), transportation and logistics costs (B = 1.841, p < 0.001), and government and institutional supports (B = 1.792, p < 0.001), have statistically significant effect on MSME productivity in Lagos State. Energy costs exhibit the highest standardised beta value (β = 0.890), followed by transportation and logistics costs (β = 0.839), and government and institutional supports (β = 0.770), indicating their relative contributions to the model. The constant term (B = 12.034, p < 0.001) is also significant, suggesting baseline productivity exists independent of the predictors.

DISCUSSION OF FINDINGS

The findings of this study provide clear empirical evidence that fuel subsidy removal significantly affects the performance of MSMEs in Lagos State, Nigeria. The results align with the cost-push inflation theory, which asserted that rising input costs, such as fuel, energy, and transportation, cause producers to increase prices, reduce output, or shrink profit margins to maintain financial stability (Parkin, 2021). The strong statistical relationship established in the regression model (R^2 = 0.634, p < 0.001) confirmed that subsidy removal, through its effect on energy, transport costs, and institutional supports, explains a substantial portion of the changes in MSME productivity.

Supporting the main objective, the findings confirm the views of Yusuf and Okeke (2024) and Ojo and Bello (2023), who established that the removal of fuel subsidies in Nigeria significantly raised production and transportation costs, resulting in reduced profitability and business closures among MSMEs. These studies reinforce the urgent need for policy mechanisms that shield MSMEs from the harsh macroeconomic adjustments of subsidy reforms.

In addressing the first specific objective, the study found that energy costs had the strongest effect on MSME performance (β = 0.890, p < 0.001). This result aligns with Ajide and Alimi (2023), who reported that increased energy expenses due to subsidy removal substantially lowered MSMEs' profit margins, escalated operational costs, and decreased productivity. This finding reflects the assumptions of the cost-push inflation theory, which highlighted how rising input costs, such as energy, directly reduce businesses' efficiency and profitability.

Regarding the second objective, transportation and logistics costs were also significant predictors of MSME productivity (β = 0.839, p < 0.001). This supports Adeoye and Olanrewaju (2022) and Mutiso and Wanjiku (2021), who found that increased fuel prices and poor transport infrastructure caused delivery delays, reduced customer access, and cut profit margins. These constraints force MSMEs to either increase prices or reduce operations, reducing market competitiveness, again affirming the cost-push inflation theory in a Nigerian business environment.

For the third objective, government and institutional supports were shown to significantly affect MSME performance (β = 0.770, p < 0.001). This corroborates Adebayo and Okonkwo (2022), who observed that interventions such as tax incentives, low-interest loans, and training helped MSMEs remain productive amidst rising costs. Their findings suggest that targeted government support can offset the negative impact of subsidy removal and enhance enterprise resilience. This study strengthens the theoretical argument that cost-induced inflation, without supportive policy buffers, adversely affects MSME performance. It also provides empirical evidence for the need for strategic protection measures tailored to MSMEs, especially during major economic policy transitions like subsidy reforms.

CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, the conclusion is that fuel subsidy removal significantly affects the performance of MSMEs in Lagos State, Nigeria. The main object was clearly supported by the findings of the study. First, the study concluded that rising energy costs negatively affect productivity the most, showing that MSMEs face serious challenges staying profitable with high operating costs. Second, higher transport and logistics expenses made it harder for businesses to reach customers, cut into profits, and limited market access. Third, the study concluded that supports from the government and institutions helped improve MSME performance, proving the value of policy support during tough economic times. All the hypotheses were confirmed, meaning these dimensions together strongly shape how well MSMEs perform. Based on this conclusion, the study recommends that the government should offer direct support to MSMEs. This includes promoting energy alternatives like solar power, giving transport subsidies, or building logistics partnerships to cut costs. The government should also simplify tax procedures and improve access to loans to help MSMEs stay strong. In addition, it should run more training and awareness programmes so businesses can benefit from available supports. These steps will help MSMEs adjust, survive, and grow in Nigeria's new economic reality.

Policy Implications and Limitations

The findings of this study have critical policy implications for improving MSME resilience following fuel subsidy removal in Nigeria. Policymakers should introduce targeted energy support initiatives, such as affordable alternative power sources, subsidised transport schemes, and simplified access to government relief funds. Institutional frameworks must be strengthened to ensure MSMEs can access credit, tax waivers, and capacity-building programmes to offset rising operational costs. These measures are essential to sustaining productivity and business continuity in a post-subsidy environment. However, the study adopted a cross-sectional design, which limits its ability to capture long-term effects. To gain deeper insights into sustained MSME performance patterns across Nigeria, future research should consider using a longitudinal approach.

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